CHEMICAL MECHANICAL POLISHING COMPOSITION AND PROCESS

ABSTRACT OF THE DISCLOSURE

A composition for chemical mechanical polishing includes a slurry. A sufficient amount of a selectively oxidizing and reducing compound is provided in the composition to produce a differential removal of a metal and a dielectric material. A pH adjusting compound adjusts the pH of the composition to provide a pH that makes the selectively oxidizing and reducing compound provide the differential removal of the metal and the dielectric material. A composition for chemical mechanical polishing is improved by including an effective amount for chemical mechanical polishing of a hydroxylamine compound, ammonium persulfate, a compound which is an indirect source of hydrogen peroxide, a peracetic acid or periodic acid. A method for chemical mechanical polishing comprises applying a slurry to a metal and dielectric material surface to produce mechanical removal of the metal and the dielectric material. A selectively oxidizing and reducing compound is applied to produce a differential removal of the metal and the dielectric material. The pH of the slurry and the selectively oxidizing and reducing compound is adjusted to provide the differential removal of the metal and the dielectric material. A method for chemical mechanical polishing comprises applying a slurry to a metal and dielectric material surface to produce mechanical removal of the metal and the dielectric material, and an effective amount for chemical mechanical polishing of a hydroxylamine compound, ammonium persulfate, a compound which is an indirect source of hydrogen peroxide, a peracetic acid or periodic acid.

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